

Low-Income Parents' Perceptions of Oral Health and Acceptance of Mid-level Dental Providers

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Abstract

Purpose: The purpose of this study was to explore low-income parents' perceptions of oral health and of mid-level dental providers as a means of improving access to care. As states increasingly consider adding mid-level providers to the dental workforce, understanding the views of potential patients toward such providers is important, since the success of this strategy will depend, in part, upon the willingness of potential patients to be treated by them.

Methods: Because little is known about the social acceptability of mid-level dental providers, the researchers employed a qualitative methodology, conducting in-depth interviews with 20 low-income parents in order to assess their perceptions of oral health, access to and need for dental care, and potential acceptance of mid-level dental providers. Interview transcripts were analyzed by a team of researchers using interpretive research methods.

Results: Respondents' descriptions of experiences with oral health and dental care demonstrate their strong desire to maintain their families' oral health, as well as their perception that they face significant barriers to receiving needed care. The vast majority of respondents expressed positive inclinations toward the introduction of mid-level dental providers, particularly once they understood that such providers would be fully trained professionals. Though in reality the cost to a patient would likely not vary, many respondents expressed increased interest in treatment by mid-level providers if it were less expensive than treatment by dentists, indicating the significant barrier that cost posed for many in the sample.

Conclusion: The low-income parents in this sample would likely seek care from mid-level dental providers if such providers were introduced in the U.S. The success of mid-level providers in meeting the needs of this population would potentially be even greater if public education clearly explained their training and professionalism.

Keywords: oral health, dental care, health services needs and demand, poverty, vulnerable populations

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INTRODUCTION

Unmet oral health needs are a major public health problem in the U.S. More than one-third of American households report failing to access needed dental care in a given year because of cost, and dental problems are an increasing cause of emergency room visits.^{1,2} In addition, poor oral health has been linked to a number of other serious health conditions, including pneumonia, diabetes, cardiovascular disease, cancer and other chronic conditions.³⁻⁸ As is so often the case, those living in or near poverty are disproportionately impacted. In a landmark 2000 report, the Surgeon General observed "profound and consequential" oral health disparities in this country, and this remains largely the case today.⁹

In acknowledgment of this problem, public health advocates, along with policy makers at the federal

and state levels, are increasingly discussing new workforce strategies, including the addition of mid-level providers to the dental team.¹⁰⁻¹³ Currently employed in only 2 U.S. states (Alaska and Minnesota) and recently approved in a third (Maine), mid-level dental providers (often referred to as dental therapists) work in New Zealand, Australia, the Netherlands, the United Kingdom and Canada, with the main objective of improving access to care for underserved populations.¹⁴

Mid-level dental providers work under collaborative agreements with dentists and provide care within a limited scope of practice. In addition to the services included in the scope of practice of dental hygienists, mid-level dental providers can also perform routine extractions, and preparing, placing and carving restorations.¹⁴ Adding such providers

has the potential to increase the number of practitioners and promote cost-effective treatment by freeing dentists to concentrate on more complex cases, while mid-level providers handle simpler procedures.

As states continue to explore the possibility of adding mid-level providers to the dental team, it is important that the opinions and perceptions of those likely to utilize such providers, particularly those lacking the resources necessary to obtain adequate dental care, are adequately understood. Those opposed to introducing mid-level providers, including many state dental associations as well as the American Dental Association, often cite concerns that this would create a "two-tiered" system of care as one objection.¹⁵

To gauge likely users' acceptance of mid-level dental providers, a team of researchers conducted semi-structured interviews with 20 low-income individuals in southeastern Michigan, exploring their thoughts about dental care. Although the researchers were specifically interested in respondents' ideas about receiving care from mid-level providers, a variety of oral health-related subjects were discussed in hopes of developing a better understanding of how respondents perceived their need for and access to dental care, for themselves and their children, and what implications this might have for the future of mid-level dental providers in the U.S.

Although the issues surrounding access to and use of dental care are complex, most analysts believe that a key component is the inability of the dental workforce to meet the existing need.^{16,17} The U.S. currently has more than 4,500 federally designated dental health professional shortage areas, many of which are in rural areas but some of which are in more densely populated regions where an insufficient number of providers are available to serve needy populations.¹⁸ A recent survey of dental school seniors found that only 8.5% say they definitely plan to work in an underserved area.¹⁹

The high cost of dental care, even for those with insurance, has also been cited as a major factor in oral health disparities.²⁰ Low reimbursement rates and the perception of high administrative burden have resulted in the unwillingness of dentists to accept significant numbers of publicly insured patients, particularly adults.^{21,22} According to a 2010 Government Accounting Office report, in the majority of states for which statistics were available, fewer than half of the practicing dentists treated any Medicaid or State Children's Health Insurance Program patients.²³ As a result, Medicaid participants (and even some patients with private insurance) find it difficult to locate dental care providers and, when they do, dental procedures often require

out-of-pocket contributions that patients perceive as unaffordable.

Despite the lack of familiarity with mid-level dental providers in the U.S., and the skepticism of many U.S. dentists, evidence indicates that such practitioners provide safe care, that their clinical competence (within their limited scope of practice) is comparable to that of dentists and that they improve access to care.^{24,25} Like nurse practitioners and physician assistants in the early years of their practice, mid-level dental providers are not well understood by the general U.S. public, but if research related to mid-level medical providers is any indication, it is likely that patients will become more comfortable with such providers once they understand their role and experience their care.²⁶⁻²⁹

When the United Kingdom expanded the training and practice of dental therapists in 2002, it was estimated that 10 to 15% of adults were aware of dental therapists' existence, and virtually none knew their permitted duties.^{30,31} Once described, however, roughly 60% of study participants were comfortable with the idea of receiving restorations from therapists. This finding mimics the public's early attitude toward nurse practitioners.²⁹ Likewise, literature on patients' post-appointment satisfaction with mid-level dental providers, similar to earlier findings about mid-level medical providers, concludes that patients who have been treated by dental therapists are satisfied with the experience.³²⁻³⁴

Though previous research suggests that, for certain procedures, mid-level dental providers offer (or could offer) a safe and acceptable alternative to dentists, very little research has focused specifically on the views of potential patients.^{30,31} A 2011 survey conducted for the WK Kellogg Foundation did find that 78% of adult respondents in a nationally representative sample supported the idea of training a new "licensed dental practitioner" to provide "preventive, routine dental care to those who are going without care."³⁵ This report did not, however, assess respondents' perceptions of such providers or the factors used to determine whether or not to receive care from them. Better understanding how potential patients perceive their oral health needs, the care they currently receive and the possibility of receiving care from mid-level providers will enable oral health professionals and policy-makers to approach the potential introduction of mid-level providers in ways that reflect the interests of those most likely to be served.

The purpose of this study was to explore low-income parents' perceptions of oral health and of mid-level dental providers as a means of improving access to care. As states increasingly consider adding mid-level providers to the dental workforce, un-

derstanding the views of potential patients toward such providers is important, since the success of this strategy will depend, in part, upon the willingness of potential patients to be treated by them.

METHODS AND MATERIALS

Beginning with the understanding that low-income individuals face a variety of barriers to accessing health care in general, and oral health care in particular,^{1,18} the researchers sought to understand how people in such situations perceive not only their need for dental care but also their access to and desire for care from various provider options, including the potential future option of mid-level dental providers. Because a lack of research exists on which to base specific testable hypotheses, a qualitative approach was chosen, enabling the researchers to access respondent perceptions that may otherwise have been left out of a survey but that, from the respondents' perspective, are key components in how they think about dental care.³⁶

To gain this more nuanced perspective, the researchers conducted face-to-face interviews with low-income individuals, combining open-ended questions about respondents' oral health and dental care with more targeted discussion of mid-level dental providers. Drawing on interpretive methodologies in the interviews and analysis,³⁷ the research team sought to develop new insight into how low-income individuals' make sense of their experiences with dental care, with an eye toward the implications for innovations in policy and practice.

Participants

Respondents were initially recruited through a Head Start program, resulting in interviews with 6 low-income parents. Additional respondents (14) were contacted through snowball sampling. Each of the 20 respondents had at least 1 child under the age of 18 and was coping with what they considered to be "financial hardship." Because mid-level dental providers typically treat the underserved, a sample of low-income parents was particularly appropriate for this study. Detailed demographic information was provided for the study sample. In reporting results below, all respondents were assigned pseudonyms to protect confidentiality.

Data Collection and Analysis

The interviews for this study were conducted as part of a larger interpretive project focused on the help-seeking decisions of low-income families. This study was reviewed and approved by the University of Michigan Institutional Review Board. The larger project included 2 semi-structured, in-depth interviews with each of the 75 respondents, each of

whom fit the sample criteria described above (at least one child under age 18 and considering oneself to be going through "financial hardship").³⁸ The researchers used Holstein et al's active interview approach,³⁹ which is grounded in a constructionist ontology and an interpretive epistemology,⁴⁰ and accounts for the broader context of respondents' lives as well as that of the interview itself. Each interview lasted 1 to 2 hours.

In 20 of the 75 interviews, the interviewer included a discussion of oral health and dental care. This came toward the end of the first interview, after discussing respondents' financial circumstances, use of various public anti-poverty programs and broader life experiences. The portion of the interviews focused on dental care was guided by a series of questions developed by the research team. Members of this team have expertise in public health, mid-level dental providers, services for low-income families and interpretive research methods. In keeping with interpretive methodology, not all of the questions in the interview guide were asked (or asked in the same order) in every interview, since, as Atkinson points out, "if you come with pat questions and follow them precisely in the interview, the answers will very likely be pat and only skim the surface. You should know when to depart from what you had planned and enter into a free-flowing conversation that will capture even more of what the person wants to tell you."⁴¹

All interview respondents were asked about their previous and current use of dental care - for themselves and for their children - as well as experiences with, and reasons for, not seeking care when it was needed. After an open-ended discussion of these topics, the interviewer provided respondents with a brief oral description of a dually-trained mid-level dental provider. A typical description given was:

"In some other countries, they have a position called a mid-level dental provider [or dental therapist] who has all the training of a dental hygienist to do cleanings and stuff like that, plus more training so that they are also able to do things like fillings, crowns and pull teeth. They don't have all the training of a dentist though, so they are sort of between a dental hygienist and a dentist."

Respondents were also told that mid-level providers work under the supervision of dentists and that 2 states in the U.S. are currently trying out mid-level dental provider models.

The interviewer then asked respondents to share their thoughts about receiving care from such a provider, for themselves and for their children. The interviewer allowed respondents to articulate their perceptions in their own words, capturing the re-

spondents' initial perceptions of mid-level dental providers based on a very limited understanding. Only after hearing respondents' initial impressions did the interviewer correct any misperceptions. This approach enabled the researchers to assess how public education concerning their training and expertise might be shaped, were such providers to be introduced more widely.

Depending on the flow of the discussion, respondents were sometimes asked whether they thought they might be more inclined to obtain treatment from a mid-level dental provider if it cost less than seeing a dentist. In fact, in this country it is unlikely that the cost of treatment to a patient would vary by provider type, but prior literature does suggest that cost can be a mitigating factor in people's comfort with new mid-level providers.^{27,29,31}

Interviews were audio-recorded and transcribed by a professional transcriber. The preliminary round of coding, which involved all members of the research team, consisted of reading through the transcribed interviews and discussing and extracting general themes. Transcripts were then uploaded into NVIVO 10 software (QSR International Pty Ltd., Melbourne, Australia), a qualitative data analysis program that assists with pattern-based coding and theme tracking. The software was used for secondary coding, revealing sub-themes as well as previously undiscovered themes. After reaching a theoretical saturation point in coding, one member of the team returned to individual transcripts to develop a better understanding of how the various themes related to one another within each individual's narrative.

RESULTS

The comments of the 20 low-income parents in this study can be categorized into 3 broad themes: perceptions of their (and their children's) oral health, experience with dental care and initial reactions to the idea of mid-level dental providers. Sub-themes to emerge included access to care (where dental care had been obtained and barriers to receiving care), anxiety about dental care, and, in addition to initial reactions about the idea of a mid-level dental provider, thoughts about the quality, training, and cost of such providers. Sample demographics can be found in Table I.

Perceptions of Oral Health

The vast majority of respondents indicated that they considered oral health to be very important. Many commented on the social importance of "good teeth," and a number acknowledged feeling embarrassed about the appearance of their own mouths (Figure 1). When the subject of oral health and dental

Table I: Sample Demographics (n=20)

Characteristic	Category	Number of Respondents
Gender	Male	1
	Female	19
Race/ethnicity	Hispanic	1
	African American	6
	White	9
	Two or more races/ethnicities	4
Age	21 to 30	6
	31 to 40	6
	41 to 50	7
	51+	1
Number of children	1 to 2	10
	3 to 4	9
	5+	1
Marital status	Single (never married)	14
	Married	2
	Separated/divorced	4
Educational status	< High school	6
	High school diploma/GED	5
	Some college	6
	Associates degree	3
Monthly income	< \$500	4
	\$500 to 999	4
	\$1,000 to 1,999	8
	\$2,000 to 2,500	4

Figure 1: Representative Comments: Importance of Oral Health

When people look at your face, they're attracted to your mouth, because you're talking to them. Your smile is the first impression....It's very important to take care of your teeth. (Tiffany)
Like, certain people I talk to, I just be like [mimes covering mouth so people can't see teeth]. (Allen)
My teeth are really messed up, [but] you can't tell, because I won't open my mouth all the way. (Janet)

care was first raised, Amanda, a mother of 2, said that she made sure she and her children saw the dentist on a regular basis.

"No one in my family has teeth. My mom, her teeth are like falling out, and they're like rotten and black, and my brother has the same issue...I never talk, we don't talk about it."

It is to this family history – and her desire to not

perpetuate it – that Amanda attributed her own focus on oral health: “I’m gonna have my teeth. It’s so important to me.”

Although 2 respondents expressed a lack of concern about oral health (because they did not consider themselves or their children to have any dental problems), most demonstrated a strong interest in maintaining their oral health and a desire to pass good dental habits on to their children. The oral health problems experienced by these parents could thus not be blamed on a failure to take oral health seriously or a lack of desire to receive treatment.

Experience with Dental Care

Although nearly half of the respondents described a time when they needed dental care but did not receive it, and only 8 reported having visited the dentist in the past year, all had previous experiences with dental care that shaped their perceptions of what such care ought to entail. These experiences included both care received and care that was needed or wanted but not obtained for one reason or another.

Access to Care

Every one of the respondents who had children living at home reported that their children saw a dentist regularly (Figure 2). Almost all of the children were covered by Medicaid (with the exception of one covered by private insurance and 2 by Michigan’s State Children’s Health Insurance Program), and their parents had been able to find dentists who accepted publicly insured children.

Though most respondents did not have trouble accessing dental care for their children, many described their own access to care very differently. For some, this meant not receiving care at all, and for others it meant receiving some, but not all, of the care they needed or wanted. Casey, for example, said:

“I went [to the dentist] two months ago. I went... to see what the Medicaid would cover, and basically... they would cover none of the things that I need done. So I just got a teeth cleaning, and that was it.”

Caroline reported similarly: “When I go to the dentist, I need stuff done that Medicaid won’t pay for.”

Some respondents, who either had no dental insurance, or were in need of care their insurance did not cover, were able to access dental care through free clinics (Figure 3). Others ended up at emergency rooms (one quarter of respondents said that they, or someone in their household, had visited an emergency room for a dental problem). Still others could not remember the last time they had seen a dentist. For one respondent in particular (Allen), this was not be-

Figure 2: Representative Comments: Children’s Dental Care

Since [my son] got older, I’ve been taking him right here [to a local dentist], and they’ve been cleaning his teeth and stuff like that. [My daughters] got a dentist that go to their school [Head Start], so that’s how they be getting their dental care. (Elsa)

My kids go to the dentist every six months . . . without fail, I make sure that they go. (Keandra)

Well my son, he has the Medicaid, so he’s covered and he’s been going to the same dentist for a while, so he’s good. (Casey)

Figure 3: Representative Comments: Use of Free Clinics

We went to [a local public clinic]. . . . That’s how we went to the dentist for a couple of years. It’s like you can go there, and if you have five bucks, you donate; if not, then you don’t pay anything. So that’s how I got my teeth cleaned for like the longest time. (Hannah)

I wouldn’t go to the dentist for years and years and years, and then somebody told me about [a local public clinic], and they offer free dental to uninsured adults within, if you meet the income guidelines. . . . So I have been a patient there for years and years now. (Liz)

I was going to the free dentist, which is at the [university] dentist school. (Jackie)

cause he thought his oral health was unimportant but, rather, because lacking any form of dental insurance, he perceived himself as having no access to care. Describing his situation, he said:

“I ate a piece of candy one year and lost my front tooth, and, I mean, I wish I could get it fixed, but I don’t have no dental care or nothing....I brush my teeth, but it’s like, when I brush them, my gums all bleed and stuff, you know? I wish I could see a dentist.”

Having recently suffered a heart attack and moved in with his sister and her 7 children while he recovered, Allen was likely to be at risk for further health problems, particularly considering the known link between oral infections and heart disease.⁵

In fact, although most respondents have found ways to access some form of oral health care, all described facing significant barriers to accessing what they perceive as adequate care. Of the 20 respondents, 12 had dental coverage through Medicaid and mentioned the limitations they faced when trying to access and afford care. As Priscilla explained: “The last dentist I did go see, I think he told me I needed a root canal or something. \$1,200. All I heard was \$1,200. I said, ‘Pull it out.’”

Even those with private insurance perceived the required out-of-pocket expenses as unaffordable. Amanda, who had dental coverage through her husband's employer, described a situation very similar to Priscilla's:

"[The dentist] wanted to do a root canal and a crown and all this stuff, and they're like, 'Even with your insurance coverage, it's gonna be \$1,000.' I'm like, 'Whoa, wait a minute. It's my very back tooth. Can we pull it?' They're like, 'Do you really want to pull it? It's still a good tooth.' 'Pull it. I can't afford \$1,000 on my mouth.'"

For some respondents, like Tiffany, matters of oral health often come down to a choice between receiving needed care or covering basic expenses:

"My filling fell out...and now there's like a hole in my tooth, and it hurts because the nerve is exposed. And I can't go to the dentist. Right now we're still trying to pay February's rent, and it's March."

Anxiety

For at least 7 respondents, the inability to pay for needed dental care was exacerbated by fear and anxiety about visiting the dentist. Georgia stated: "I'm afraid of the dentist. I'm afraid 'cause it done got so bad, it's going to be really painful." To avoid visiting the dentist, she takes over-the-counter pain medication to manage her failing oral health.

Others described visiting the dentist for some care, but still avoiding more extensive dental procedures because of fear or anxiety. Leslie reported:

"The dentist will come in and tell me I need fillings, like every single time, because I don't ever actually come back and get them. I've needed the same ones for a long time. I'm just scared to do it."

Finally, Elsa, who gets regular cleanings despite her admission that she cries every time, decided not to proceed with a necessary tooth extraction: "I'm really scared of getting some teeth pulled."

Reactions to the Idea of a Mid-level Dental Provider

The respondents in this study made it clear that they wanted dental care for themselves and their children. They wanted to maintain good oral health. In addition, the quality of the care they and their children received was also important to them. These parents expressed their strong desire to have care that was not only accessible and affordable but also professional and, for those with dental anxiety, even compassionate.

When told about the concept of a mid-level dental provider, the majority of the parents in the study were positively inclined toward them. Nearly all respondents (18 of 20) indicated that they would be likely to seek care from a mid-level provider should they be added to the dental team. A number drew comparisons between mid-level dental providers and nurse practitioners, with whom they were already familiar (and comfortable). Others, who had experienced difficulties accessing dental care in the past, were simply excited about the opportunity to be seen by any dental professional.

The 2 respondents who said they would not be comfortable being treated by a mid-level provider explained that this was, at least in part, due to their serious oral health issues, which they (accurately) perceived to be beyond the scope of a mid-level provider's training. Thus it was not necessarily a lack of trust in the quality of care mid-level professionals would provide but knowledge of their own dental needs that led to their decisions.

Among those who said they would seek care from a mid-level provider for themselves, a few did have hesitations about taking their children to one. Casey, for example, said she would be willing to receive care from a mid-level provider for herself but not for her son, saying: "I will make the sacrifice...but [for my son], I want him to get the best."

Quality of Care

Statements like Casey's, implying that it would be a sacrifice to be treated by a mid-level provider rather than a dentist, indicated an uncertainty about the quality of care mid-level providers might offer. In fact, assumptions about the quality of care, rather than the status or title of the provider, seemed to be the determining factor for many respondents. Several initially questioned the adequacy of mid-level providers' training, likening mid-level dental providers to dental students or, in the case of Leslie, "street dentists": "You're not really a dentist, but you're kind of a dentist. No. I don't like that." Once it was explained to her that a mid-level provider would be a fully trained professional (albeit with more limited training than a dentist) and would be working under a collaborative agreement with a dentist who could be reached if necessary, Leslie said that she would feel "fine" about receiving care from such a provider. Elsa, whose severe fear of the dentist resulted in her crying at every visit, went beyond this to say that what mattered most to her was "not really the person that does [the dental work]" but the patience and compassion that person was able to demonstrate.

Cost of Care

Because the primary concern of many respondents

was being able to afford the dental care they needed, they expressed even more interest in being treated by mid-level providers if these providers were to cost less than dentists. Under current U.S. policy, it is unlikely that out-of-pocket costs to patients would vary by treatment provider, but respondents' repeated reference to this issue deserves mention. Shelly, who originally stated that she would accept care from a mid-level dental provider for herself but not her children, quickly changed her mind when asked whether it would make a difference if the cost of seeing a mid-level provider was less than going to a dentist. Similarly, when Erin, who had immediately expressed comfort with the idea of mid-level providers, was asked if she would be even more likely to visit such providers if the cost were less, the reply was: "Oh hell yeah!"

DISCUSSION

The addition of mid-level providers to the dental workforce has the potential to improve access to care by both adding to the total number of practitioners and improving efficiency in the delivery of oral health care. The lower salary of a mid-level dental provider (roughly half that of a dentist) could allow safety-net clinics and dental offices to hire additional providers to perform routine procedures, leaving the more complex, but less common, procedures for the dentist.⁴² In addition, since the rate of reimbursement would be more in line with costs, these offices would be able to treat more Medicaid patients. Indeed, evidence from Minnesota suggests that the addition of mid-level providers leads to both of these results.⁴² Because mid-level dental providers are still relatively unknown, however, it is important to understand how potential patients might react to their care. The willingness of these individuals to be treated, or have their children treated, by a new provider has implications for the success of the strategy as a means of improving access to care.

It is clear that the low-income parents interviewed in this study cared about their oral health, but they also described many frustrating experiences trying to access or afford dental care. When the idea of a mid-level dental provider was proposed, they were positively inclined toward such a possibility. In fact, the rate of acceptance among respondents was at least as high, if not higher, than has been reported in previous studies regarding the early social acceptability of nurse practitioners, physician assistants and dental therapists in the United Kingdom. This might be because of their familiarity with mid-level medical providers and/or a reflection of the high perceived need for dental care among this particular sample.

Among the minority of parents who indicated reticence toward the idea of a mid-level dental provider,

most were comfortable with the idea of seeing one themselves but not with taking their children to one. This could be due to the fact that most seemed to have little problem accessing care for their children, while obtaining needed care for themselves was much more difficult. This finding is in line with the prior literature,³⁰ though also ironic, since in many countries where dental therapists are employed, their primary focus is on treating children, whose oral health needs typically fall squarely within the scope of practice of mid-level providers.

Although respondents expressed mainly positive views about mid-level dental providers, their interest in obtaining high quality care caused some to hesitate. As noted above, research has found that mid-level dental providers offer safe care and that their clinical competence (within their scope of training) is comparable to that of dentists, indicating that the actual quality of care offered by such providers is less of an issue for their future success than the perceived quality of care.^{14,24} None of the respondents in this study explicitly mentioned concerns about the type of two-tiered dental care that dentists often describe in their objections to the introduction of mid-level providers. Many did, however, express confusion about the training and professionalism of such providers, leaving open the possibility that they perceived mid-level providers as second-tier. This came across most clearly in Leslie's reference to "street dentists," but it was also a concern raised by others who compared mid-level providers to dental students. Keandra, for example, who was one of only 2 respondents who said that they would absolutely not accept dental care from a mid-level provider, based her opinion, in part, on previous negative experiences receiving care at a dental school:

"It was a bad experience, so, no, I don't want to do that. I'd rather just go to the dentist where I know it's going to be taken care of the first time."

Part of the confusion may have arisen from the interviewer's use of the term "supervision" to describe the relationship between mid-level dental providers and the dentists with whom they have collaborative agreements. Perhaps because many respondents had experience receiving care from dental school clinics, they associated the word "supervision" with practitioners who were still in the process of being trained. When told that a mid-level dental provider would always work "under the supervision" of a dentist, Jackie, for example, immediately responded: "I wonder if that's what the students are? I don't know if that's the name that they used." In fact, mid-level dental providers are professional practitioners who have completed their training and are licensed, unlike dental students who are still being educated. That several respondents did not recognize this distinction – and that their opinions about receiving care

from mid-level providers appeared to be impacted by this misperception – demonstrates the need for conscious public education, particularly among low-income adults and other likely patients, if mid-level providers are to be successfully integrated into the U.S. dental workforce.

As has been noted above, cost was mentioned by many respondents as a barrier to receiving needed dental care. Since the prior literature had identified cost as a potential mitigating factor for individuals who were apprehensive about new mid-level providers,^{29,31} the interviewer sometimes queried along these lines to better understand how the feelings of respondents in this study compared to those reported in the literature, and to understand what might make these parents more or less hesitant about receiving treatment from a new mid-level provider. In practice, it is unlikely that patients would face a different cost of care based solely on what type of provider delivered that care. The fact that several respondents indicated that their willingness to utilize a mid-level dental provider might be impacted by the perceived lower cost of doing so, serves to highlight the importance placed on receiving needed dental care.

Conversations with the low-income parents in this study suggest other possible benefits associated with the introduction of mid-level dental providers. Dental anxiety was mentioned by several respondents as an additional barrier to obtaining dental care. Existing literature supports this, as those with dental anxiety have been found to go to the dentist less often than those without such fear and too often delay or avoid needed care and have poor oral health outcomes.⁴³⁻⁴⁷ It is possible that the reverse may also be true: those who are unable to access timely care may develop more serious dental problems, which may lead to more fear and anxiety about treatment. Research also suggests that patients tend to experience higher levels of dental anxiety for treatment by dentists than for treatment by dental hygienists, in part because they find dental hygienists easier to talk to and more patient.^{48,49} This suggests that mid-level dental providers, whose training tends to emphasize skills that lead to rapport-building, might also be better able to meet the needs of patients with dental anxiety. A hallmark of the Alaskan DHAT program, for example, is that the mid-level providers come from the communities in which they work, which has had positive results with respect to dental fear among Alaska Natives.⁵⁰

The fact that the emergency room was mentioned as a source of dental care by a number of respondents points to another potential benefit of the addition of mid-level dental providers. It is well recognized that non-traumatic oral health issues are an increasing reason for hospital emergency department visits.^{2,51,52} The emergency room is not a sat-

isfactory source of care, however, since it is often limited to treatment for pain and infection, leaving underlying problems unaddressed.⁵³ Improving access to routine dental care would allow earlier and better preventive treatment, which in turn should result in the need for fewer expensive procedures and extractions in the future.

It is known that patients who receive treatment from mid-level providers (medical or dental) are, for the most part, satisfied with the experience. What has not been known previously is how potential patients in the U.S., particularly low-income adults who currently face barriers to accessing dental care, perceive the idea of mid-level providers in dentistry. Prior studies on the attitudes of the public toward nurse practitioners, physician assistants and dental therapists in the United Kingdom suggest that, before new mid-level providers became well known, skepticism and misconceptions were common. Despite this lack of knowledge, however, the public has generally been positively inclined toward the introduction of such providers.

Drawing on their experiences receiving (and not receiving) dental care in the past, the respondents in this study shed light not only on the need for increased and expanded dental care options in the U.S., but also on the ways in which new options might best be introduced. In light of their experiences and perceptions, it seems unlikely that these respondents would view the introduction of mid-level dental providers as creating a second tier of care if adequate public education explained the training and professionalism of such providers. The comments offered by respondents highlight the aspects of mid-level dental care provision that are most appealing and most concerning to potential patients, giving public health officials and policy advocates critical information for designing campaigns to introduce these new dental providers at a time when increased access to dental care is desperately needed.

Limitations and Recommendations

Based on the size and characteristics of the sample, as well as the interpretive methodology employed, it is not possible to generalize the findings of this study to the broader population of low-income parents in the U.S. It is, however, recommended that researchers draw on the depth of knowledge provided by this sample in developing future studies related to the acceptability of mid-level dental providers. Because the findings reported here are based on a sample of 20 individuals in a single geographic region, it is specifically recommended that future studies expand on our results in two ways.

First, additional interpretive studies should be conducted in other parts of the country, with a particular

focus on dental health professional shortage areas. It is possible that the views and experiences of the 20 individuals in this sample are shaped, at least in part, by the resources present (and absent) in their particular location. Individuals and families living in rural areas of the country, for example, may have very different experiences of accessing dental care than those living in or near a major city, and these experiences may shape their willingness to accept care from mid-level providers. Conducting research similar to that described here in multiple locations has the potential to provide support for the current findings and/or to add new insights on the topics in question.

Second, larger scale quantitative research should be conducted in order to determine the level of acceptability of mid-level dental providers among a representative sample of low-income adults. Drawing on the findings presented here, such research should include survey questions that address not only respondents' likelihood of accepting care from mid-level providers but also their ideas about the qualifications of these providers. Surveys should also gather information about respondents' current access to and experiences with dental care, as our findings suggest that these factors play a role in how low-income parents think about mid-level providers.

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CONCLUSION

Based on their responses to the questions asked in this interpretive research study, the low-income parents in this sample would likely seek care from mid-level dental providers if such providers were introduced in the U.S. The success of mid-level providers in meeting the needs of this population would potentially be even greater if public education clearly explained their training and professionalism.

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DISCLOSURE

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